

1997
Executive Research Project

**The Art of the Bluff with
Weapons of Mass Destruction**

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19971113 088

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REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY N/A			3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution Statement A: Approved for Public Release: distribution is unlimited.		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE N/A					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) NDU-ICAF-97			5. MONITORING ORGANIZATION REPORT NUMBER(S) N/A		
6a. NAME OF PERFORMING ORGANIZATION Industrial College of the Armed Forces		6b. OFFICE SYMBOL (If applicable) ICAF-FA	7a. NAME OF MONITORING ORGANIZATION National Defense University		
6c. ADDRESS (City, State, and ZIP Code) Fort McNair Washington, D.C. 20319-6000			7b. ADDRESS (City, State, and ZIP Code) NDU-LD-SCH Ft. McNair Washington, D.C. 20319-6000		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION N/A		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER N/A		
8c. ADDRESS (City, State, and ZIP Code)			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
11. TITLE (Include Security Classification) <i>The Art of the Bluff with Weapons of Mass Destruction</i>					
12. PERSONAL AUTHOR(S) <i>LtCol James F. Diehl, USAF</i>					
13a. TYPE OF REPORT Research		13b. TIME COVERED FROM <i>Aug 96</i> TO <i>Apr 97</i>		14. DATE OF REPORT (Year, Month, Day) <i>APRIL 97</i>	
15. PAGE COUNT <i>35</i>					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number) See Attached					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED		
22a. NAME OF RESPONSIBLE INDIVIDUAL Susan Lemke			22b. TELEPHONE (Include Area Code) (202)		22c. OFFICE SYMBOL NDU-LD-SCH

Abstract

Like the Cold War years, the world once again finds itself at the crossroads of mass destruction. Dynamic changes in world political polarity, regional power struggles, and the turmoil of ethnic and religious unrest have positioned humanity at the starting gates of a renewed arms race with weapons of mass destruction (WMD). Rivalries within the nations of the global periphery, those third world nations lacking major power status, are sparking a crisis of world instability and conflict. At the heart of this crisis are the rogue leaders who see nuclear, chemical and biological weapons of mass destruction (WMD) as their ticket to power and stature in a regional conflict. Also fanning the fires of crisis are the disenfranchised nationalistic, ethnic, and religious groups who see these same weapons as a legitimate means to pursue their political agendas.

The looming crisis in the periphery appears even more dangerous because of those unique attributes of WMD that enhance their appeal, such as their lethality and ability to inspire fear. Also, the science to produce such weapons is well known and available via a multitude of accessible public sources. The growing appeal of certain categories of WMD emanates from their low cost, ease of production, difficulty in detection, and relative simplicity in employment.

Regrettably, mankind's technological advances may soon spawn yet another new type of weapon capable of mass destruction -- the offensive use of information age technology. As the global information infrastructure evolves, new vulnerabilities to national security will emerge in the form of threats to a nation's communications and financial institutions. While information warfare may never result in the instantaneous physical devastation associated with traditional WMD, in the world of the next century it will potentially have the ability to inflict devastating long-term effects on a nation's security and social well-being.

Unfortunately, as some people seek to stop the proliferation of WMD, others look to the history of these weapons and recognized that they are unique in their capability to provide significant political power at low cost. If a nation is bold enough to attempt a WMD bluff and another is gullible enough to believe it, the weapons do not even have to actually exist or

function. The successful US bluff of the Japanese in World War II and examples of Cold World nuclear brinkmanship all serve to encourage WMD proliferation by reinforcing the utility of a small arsenal of such weapons as power *equalizers*. These lessons from history, once coupled with an understanding of today's modern weaponry, can be summarized into ten "Axioms of a Good Bluff." These axioms provide chilling proof of the utility of WMD threats by rogue leaders locked in regional conflict, or terrorist groups desiring to extort concessions or punish their enemies. These Axioms are: Credibility is Easier with WMD, *Undeclared WMD Have Their Advantages*, Periodically Reinforce the Bluff, Keep a *Big Friend*, Appear Irrational (Sometimes), Don't Overplay Your Hand, Make Use of the Bluff, No *Weapons of Last Resort* Doctrines, Go Chem or Bio - They're Cheaper, Easier, and Can Be Kept A Secret, and In Information Warfare -- the Cyber-bluffer Has the Advantage of Sanctuary.

If the US, as the world's remaining super power, is to accept the lead in the fight against this renewed surge in WMD proliferation, it must also turn to the lessons of history for answers. In so doing, the US leadership would see that proliferation is impossible to stop totally, but it can be controlled and its adverse effects on world peace and security minimized. To meet this challenge, the US needs to take the lead in updating the world's concepts of deterrence to include a chemical and biological containment strategy. Complementing other international counterproliferation regimes, such as the Biological Weapons Convention (BWC) and the Chemical Weapons Convention (CWC), this new regime of containment would unite the core of the world's major powers (China, France, Germany, Great Britain, Japan, Russia, and the US) in the economic and political isolation of any nation which uses or threatens to use (domestically or abroad) chemical or biological weapons.

The US response to proliferation should also entail adoption of the *50 By 2020* nuclear disarmament program, which calls for the world's major nuclear powers (China, France, Russia, United Kingdom, and the US) to join in the gradual *build-down* of their stockpiles to a level of 50 weapons by the year 2020. This program would help reduce the incentives for a renewed nuclear arms race, while allowing the US to make good on its Non-Proliferation Treaty

obligations to pursue general and complete nuclear disarmament. The provisions of *50 by 2020* also would provide for greater global stability through increased visibility of the world's nuclear stockpiles.

As the US seeks to reduce the WMD threat in the 21st century, it must recognize that it has a destiny to create at the dawn of the information age. As the world's leader in information age technologies, the US needs to employ these technologies to inspire a spirit of cooperation among the world's nations through the harmonization of their political and economic institutions, and to reinforce internationally accepted norms of behavior (i.e. non-aggression, human rights, and nonproliferation of WMD). Through a determined effort to harness the power of the information age, the US can lead the nations of the world into the 21st century as partners in peace -- united in their effort stop the spread of WMD.

In summary, the world remains a very dangerous place. Changes in world order, coupled with the growing availability of WMD technologies, have afforded the nations of the periphery a broad new opportunity to engage in the high stakes brinkmanship of bluffing with WMD. Reinforcing the appeal of such weapons are the lessons and precedents of history. As the US prepares for the 21st century, it needs to counter the appeal of WMD through a modernization of the world's concepts of deterrence with a new set of carrots and sticks.

Introduction(1)

The bi-polarity of the Cold War and the fears of world war have ceased. The dread of two superpowers fighting on a global scale has given way to a "new world disorder in which resurgent nationalism and long suppressed ethnic rivalries are fanning the fires of armed conflict within the nations of the periphery--those third-world and third-world-plus countries that lack major power status." (2) Echoing these sentiments, President Clinton stated in his September 1994 address to the United Nations that "the dangers we face are less stark and more diffuse than those of the Cold War, but they are still formidable--the ethnic conflicts that drive millions from their homes; and despots ready to repress their own people or conquer their neighbors; the proliferation of weapons of mass destruction, the terrorists wielding their deadly arms..." (3) Clearly, the world is still a very dangerous place and the new threat has become regional, rather than global. Since the end of the Cold War over six million deaths have resulted from 29 "small" wars. (4)

At the heart of these conflicts are the rogue leaders. Unconstrained by the world's major powers and unfettered by the Cold War's calculations of nuclear deterrence, regional rogue leaders see nuclear, biological, and chemical (NBC) weapons of mass destruction (WMD) as their ticket to power and stature in a regional conflict. Reinforcing their zeal for these weapons are the lessons and precedents of history that do little to discourage their pursuit of the WMD ticket to power.

For the past fifty years, history has taught those who have regional hegemonic ambitions within the periphery that WMD are unique within the realm of weaponry. These weapons have awesome coercive power and are endowed with a kind of *utility factor* that permits the achievement of national objectives without the weapons ever being assembled. Regrettably, history has shown the peripheral nations that the utility of WMD does not depend so much on their being operational; but on one nation being bold enough to *run a bluff* with WMD (threatening the development or use of WMD without ever intending to follow through with the

threat) and another nation being gullible enough to believe it. As Henry Kissinger once stated, “a bluff taken seriously is more useful than a serious threat interpreted as a bluff.”(5)

Key to discouraging the spread of WMD within the periphery is a clear understanding of the *perceived* utility of these weapons and the counterproliferation alternatives. This desired understanding can be achieved by answering two questions. First, what is the appeal of such weapons to the nations of the periphery and, second, what possible approaches exist that might discourage WMD proliferation? In response to the first question posed, this paper will begin by exploring the nature of WMD -- their uniqueness and availability. This exploration also will include an examination of information age technology as a potentially new WMD in the 21st century. Next, historical examples of bluffing with nuclear weapons and their delivery systems will be discussed to explain why the nations of the periphery might perceive great utility in acquiring weapons capable of mass destruction. Base upon these historical examples, the author has derived ten "Axioms of a Good Bluff." These Axioms serve as a conceptual framework for the orchestration of a successful WMD bluff and help to illustrate the appeal of WMD. In response to the second question posed, this paper will discuss approaches to discouraging WMD proliferation within the periphery. These approaches will be presented in the form of the following three enhancements to current counterproliferation efforts: 1) initiation of a chemical and biological containment strategy, 2) implementation of a proposed *50 By 2020* nuclear disarmament program, and 3) US leadership of the world's entry into the information age of the 21st century. In conclusion, some thoughts will be presented concerning the need for US leadership to update the world's concepts of deterrence with a new set of carrots and sticks.

The Nature of the WMD

Their Uniqueness

WMD are singularly unique among mankind's weapons because of their destructive tactical power and the potentially devastating long term effects they can inflict on a nation's society and

environment. William Schwartz and Charles Derber, in their book The Nuclear Seduction, provided the following description of a twenty-megaton nuclear warhead striking Boston:

“Within a radius of four miles...the city will literally disappear. It will be replaced by rubble. More than 750,000 will die outright, from concussion, heat, and fire. Many of them will be vaporized. Fire-wind storms...will originate in a fireball hotter than the sun, and will sweep a radius of twenty miles. Within that radius 2,300,000 will die outright. Another 500,000 will be disabled and in shock...anyone who looked at the explosion from a distance of forty miles or less will likely be blinded. Epidemic disease, carried by radiation-resistant flies and mosquitoes and by hunger-crazed animals, will end the suffering of more than 25% of the weakened survivors. In the judgment of several authorities, such diseases from the past as polio, dysentery, typhoid fever, and cholera will reappear.”(6)

A smaller nuclear warhead, equivalent in destructive power to the bomb dropped on Hiroshima, can cause 100,000 casualties and spread radioactive contamination over a range of eight kilometers. A ballistic missile-launched biological weapon can cause a similar number of casualties and contaminate a 100 square kilometer area.(7)

The uniqueness of WMD also stems from the fear they inspire. All the world is familiar with the images of the monstrous results of a single nuclear weapon on the city of Hiroshima, a weapon which killed 110,000 of Hiroshima's 240,000 men, women, and children, and continued to kill for the next 35 years at a rate of 2,500 people annually. The magnitude of Hiroshima's carnage burned into the world's collective consciousness the realization that WMD are indiscriminate killers of soldiers and civilians alike.(8)

Regrettably, while WMD are feared, they are viewed by many nations as being valuable in their cost effective “bang for a buck” calculations. A 1969 UN estimate of such calculations concluded the “costs of producing mass casualties per square kilometer are as follows: biological-\$1/sq km; chemical (nerve agent)-\$600/sq km; nuclear-\$800/sq km; conventional-

\$2000/sq km.(9) Even the poorest nations of the world can obtain the most expensive WMD -- nuclear weapons. For example, Pakistan, which has been ranked below Haiti and Bangladesh for its quality of life, has been ranked 11th on the CIA's list of nuclear powers. Lacking the wealth of natural resources, a sophisticated industrial complex, and the scientific expertise of other nuclear nations, Pakistan is a "model of how far a down-and-out nation can go in acquiring nuclear arms when its leaders combine unwavering resolve with flexibility and imagination."(10)

For the nations of the periphery, a unique quality of WMD is revealed in the *Minimalist Approach* to proliferation. This enlightened approach discourages any quest to match the WMD arsenals of the major powers with their elaborate command and control networks, state of the art weapons designs, and precision delivery systems. Instead, the minimalist approach only seeks to obtain a small quantity of unsophisticated weapons capable of mass destruction. Even if the technologies employed are 40 years old and the delivery systems crude (e.g., a cargo ship in the harbor of a major city or a explosive laden van parked at the World Trade Center), the possession of a handful of such weapons could provide a significant edge in regional balance of power correlations. Therefore, with modest technology and a relative low investment in resources, "rogue nations and 'clienteles' states, terrorist groups, religious cults, ethnic minorities, disaffected political groups, and even individuals" can pursue regional power through WMD club membership.(11)

Ease of Availability

Identifying the members of the WMD varies because of differences in counting criteria and political agendas. It has become clear, however, that membership has been growing and will continue to do so as rogue regimes come to realize the growing availability of such weapons. While only eight nuclear club members have emerged since the 1940's,(12) the science of nuclear weapons is well known and is no longer the sole purview of a select group of scientists sequestered in a Manhattan project environment. A determined nation or group now can build a

nuclear weapons program by tapping into a multitude of public sources to include foreign journals, technical libraries, universities, and the Internet. Potential proliferates can also send their students to foreign universities (outside the reach of weapons technology export controls) and turn to foreign trade for help. Trade, according to former US Secretary of Defense Les Aspin, is “leading to ever greater diffusion of technology” and making “it harder and harder to detect illicit diversions of materials and technology useful for weapons development.”(13) Moreover, if an aspiring nuclear club member overcomes the significant challenge of obtaining fissile material, it will discover that nuclear weapons are easier to make than when the US first initiated its program over 40 years ago.(14)

As for biological weapons, over 12 nations currently have the capability to infect and poison people, animals and plants with deadly living organisms.(15) Use of biological weapons dates back to the practices of tossing plague-infested carcasses over the walls of enemy cities, the British providing hostile Indians smallpox infected blankets during the French and Indian Wars, and the Civil War poisoning of wells to slow the advances of Union forces towards Atlanta.(16) In today’s high-tech world, the production of biological weapons is within the capability of a well-equipped microbiology laboratory, operated by university-level biologists. Needing a facility no bigger than a small factory, production facilities can be hidden from view or disguised as legitimate research facilities. The only credible means of detection is by reporting from personnel directly involved in the weapons production process.(17) For example, in 1995, despite highly intrusive UN inspections and constant surveillance by Western intelligence services, it took two Iraqi defectors to reveal the existence of Iraq’s extensive chemical and biological production capabilities.(18)

Of the three traditional categories of WMD, chemical weapons represent the greatest immediate threat with over 25 nations currently capable of producing such weapons.(19) Chemical weapon ingredients and formulas are well known and readily available. Their low costs, coupled with their lethality, have earned them the nickname of “the poor man’s atom bomb.” Detection and elimination of chemical weapons agents are complicated by their

legitimate use in such common substances as ink, gasoline additives, pesticides, and fertilizers.(20) Because of this widespread availability, current detection technologies are ineffective in locating clandestine chemical production facilities.(21) The successful low-tech production and release of a deadly sarin gas in the subways of Tokyo by Japan's Aum Shnriky cult was a "wake-up" call to the world concerning the magnitude of the proliferation threat of chemical weapons.(22)

Within the US, the availability of high toxic substances is made possible by their use in medical therapies. Lethal substances such as bubonic plague bacteria, deadly viruses, and toxins can be found in many hospitals and are available through mail-order. In one 1995 incident, a member of an American white supremacist group obtained three vials of pure bubonic plaque, via mail-order for a cost of \$240. In another 1995 incident, a white supremacist crossing over the border between the US and Canada was found to be in possession of four guns, 20,000 rounds of ammunition, several pieces of "survivalist literature," and 130 grams of ricin -- capable of killing thousands of people. Clearly, the availability of nuclear, chemical, and biological weapons is fanning the fires of WMD proliferation.(23)

The New WMD for the 21st Century – Information Warfare

Throughout history, mankind's propensity to devise new and ingenious ways with which to kill one another has been boundless. With every new generation came greater efficiency and lethality, and a transition of armed conflict from the purview of small groups of warriors to the incorporation of entire societies. Today, as we attempt to protect our current societies from man's latest successes in WMD weaponry, we must look to the future and ask....what comes next? Will Hollywood's fantasies of lasers, photon torpedoes, and plasma weapons become tomorrow's reality, or will the next generation of weapons be more subtle but with the ability to inflict pain and suffering on an ever increasing proportion of a nation's society? One possible answer put forth by Dr. Alan Salisbury (Major General, US Army, retired), a former commander of the US Army Information Systems Engineering Command and the current president of

Learning Tree International, is that information age technology might just be the new WMD of the 21st century.(24)

As the global information infrastructure evolves, new vulnerabilities to national security will emerge in the form of threats to a nation's communications and financial institutions. Futurist's concepts of Cyberspace and Netwar will become a reality, and subject to attack from information age technologies will be a nation's electrical and nuclear power generation plants, ground transportation networks, communications, financial markets, air traffic control, military command and control systems, and other information dependent systems. Although today's discussions of such advancements in information age technologies would be "akin to discussions in the Victorian era of what air-to-air combat would be,"(25) the magnitude of the threat in the 21st century is significant. One observation describes Netwar (a part of information warfare) as:

"Information-related conflict at a grand level, which involves attempts to destroy an enemy's societal connectivity and protect one's own. The target range includes a society's communication, financial transaction, transportation, and energy resource network links. While degradation and protection of physical assets are important, the primary focus is on attacking and defending the linkages essential to the functioning of modern society."(26)

While information warfare may never result in the instantaneous structural devastation associated with nuclear weapons or the physical debilitation of human beings caused by chemical and biological weapons, descriptions of information warfare in the 21st century do resemble the commonly held 20th century views of the potentially devastating long term effects of WMD on a nation's security and social well-being. For the US, a highly visible succession of successful information warfare attacks on American banks could undermine confidence in US financial markets and potentially cause a repeat of the Great Depression, only much grander in the level of suffering. Information Warfare may even become the WMD of choice in the 21st century because of its low cost and readily available technology. Rogue nations or small groups of terrorists, with little technical expertise, will have the power to anonymously threaten instant

societal-wide damage. While such attacks will likely never replicate the destructive power of nuclear weapons, Information Warfare attacks in the 21st century will easily rival the levels of suffering achieved by chemical weapons during the 20th century. Further, the absence of front lines and the visible destruction of buildings will slow detection of attack and delay defensive responses. The American challenge will be to harness the power of information technology so as to protect its vital interests and deter the attacks of others.(27)

Four Lessons From History

As alluded to in the introduction of this paper, history has taught those desirous of regional hegemony in the periphery that WMD are unique and, for a nation willing to *run the bluff*, can significantly enhance political power for such states even if these weapons do not actually exist. The following four historical cases of nuclear bluffing serve to illustrate the potential utility of bluffing with all categories of WMD.

Lesson #1: Beginner's Luck

As outrageous as bluffing with WMD may seem, it should be noted that the world debut of nuclear weapons began with a bluff. During World War II, the US successfully bluffed Japan into promptly capitulating by using two of its three nuclear weapons. Japan, fearing a much larger nuclear stockpile (something greater than the one remaining weapon), found itself in no position to "call the bluff." This first bluff demonstrated the great utility of nuclear weapons in conflict termination. A more profound lesson learned from this first use of nuclear weapons is that WMD are not just battlefield weapons -- they also are political instruments of terror. One observation was that the use of atomic weapons "against Hiroshima and Nagasaki may have been justified, at the time, in military terms; but the strategic bombardment theories that they finally validated had long before become campaigns of terror against the civilian populations."(28)

This mass terror aspect of WMD may represent the single greatest threat from the periphery. Radical groups from the periphery, similar to those who bombed the World Trade Center with a weapon laced with lethal sodium cyanide, may turn to WMD to maximize the level of pain they inflict on the major powers of the world. Not seeking concessions nor dialogue with the major powers, these groups could strike without warning and then disappear. Substantiating this threat, Ambassador Morris Busby, a former senior official in America's fight against terrorism, warned that rogue states and sub-national groups may seek to inflict significant loss of life and property damage solely to punish America.(29)

Lesson #2: Utility Doesn't Mandate Use

One of the early masters of the WMD bluff, President Eisenhower, proved that WMD do not have to be used to achieve a desired result. According to John Newhouse, in his book entitled, War and Peace In the Nuclear Age, Eisenhower sought an end to the Korean War without using nuclear weapons or massive conventional forces. To meet this end, President Eisenhower discreetly let it be known that he thought the best way to keep the attack from becoming too costly would be to use nuclear weapons. He had hoped the leaked statement might reach the Chinese and Soviets. Eisenhower persisted with his bluff by establishing a US nuclear strike capability in the Far East; well within the reach of major Chinese and North Korean cities. Eisenhower's bluff worked and the conflict was soon resolved. Though there may have been a variety of reasons for the quick end to the conflict, it is very likely that the leaked statements of a newly elected American president, coupled with the presence of nuclear armed bombers in the Far East, were part of the Chinese and North Korean's decision to halt the conflict.(30)

Lesson #3: The Soviets Learn To Bluff

The Soviets met the challenge of the US nuclear threat by initiating a WMD bluff of their own. In 1955, they fooled an American air attaché into thinking he had observed twice as many nuclear-capable Bison bombers as the Soviets actually had. As Newhouse observed: "The

Soviets had actually duped him and other Western observers. The ten Bison which flew past the reviewing stand made a wide circle, were joined by eight others, and then made another pass. The hoax--designed to conceal weakness--created the impression of a much larger long-range Soviet bomber force than actually existed."(31)

This bluff, coupled with other Soviet deceptions, gave the world an impression of a much larger nuclear strike capability than actually existed. Among the consequences of this early bluff was the subsequent turmoil caused within NATO as its European members began to question whether, in response to an overwhelming Soviet conventional attack, the US would initiate a nuclear response -- placing American cities at risk. French President Charles de Gaulle, among those who most doubted American resolve to defend NATO, responded by pushing for the prompt development of a French nuclear deterrent force and the orchestration of the French withdrawal from NATO's integrated military command structure.(32)

Unfortunately for the Soviets, they were too successful with their bluff. The US became obsessed with a "bomber gap" and "missile gap" and initiated a massive build-up of their own nuclear forces. Resolved to deter the perceived Soviet nuclear threat, the US also made three major changes in its nuclear strategy. First, the US adopted a strategy of *assured second-strike capability* through the establishment of a triad of land-based ICBMs, submarine-based SLBMs, and long-range bombers. Secondly, the Single Integrated Operations Plan was developed for the conduct of nuclear war against the Soviet Union, resulting in a shift from *city-busting* nuclear attacks to strikes on military and industrial targets. The third change was the replacement of the US strategy of *massive retaliation* with a new strategy called *flexible response*, acknowledging that low-yield nuclear forces might be used in response to Soviet attacks on NATO. Consequently, a valuable lesson learned by the Soviet experience is that WMD bluffing can have unintended and unwelcome results.(33)

Lesson #4: WMD As Power Equalizers

One lesson nations would like the periphery to overlook is the utility of WMD as power equalizers between unequal nations. Even now, as the US attempts to take the *moral high ground* by telling nations of the periphery they do not need weapons capable of mass destruction, the US cannot deny its own dependence on nuclear weapons during the Cold War for countering superior Soviet conventional forces in Europe. The irony of this role reversal was best voiced by former US Secretary of Defense Les Aspin:

"During the Cold War, our principal adversary had conventional forces in Europe that were numerically superior. For us, nuclear weapons were the equalizer. The threat to use them was present and used to compensate for our smaller numbers of conventional forces. Today, nuclear weapons can still be the equalizer against superior conventional forces. But today it is the US that has unmatched conventional power, and it is our potential adversaries who may attain nuclear weapons."(34)

What was not made abundantly clear by Secretary Aspin's remarks is how large a WMD arsenal must be to "equalize" superior conventional forces. Remembering that it only took two weapons to bring Japan to its knees while it still had five million soldiers still in uniform, the answer may well be a very small number, indeed -- particularly against those who do not have their own WMD capabilities and are unsure as to the quantity of their adversary's nuclear stockpile.

Axioms of a Good Bluff

Through an understanding of the events of history, coupled with insights into today's weaponry, a number of lessons can be gleaned which seem to encourage the nations of the periphery to run their own WMD bluffs. These lessons have been summarized in the following axioms:

Axiom I: Credibility is Easier with WMD

Central to any threat of violence, including deterrence, is credibility; the belief that a threat is backed-up by "sufficient means" to carry it out. Such "sufficiency" has often been assessed in terms of numbers and quality of operational tanks, aircraft, ships, and the overall size of armed forces. As a hypothetical example, one could imagine a country capable of manufacturing only cannons and tractors threatening its neighbors with an imminent tank assault. Such a threat would require an enormous leap of logic to believe that tractor and cannon barrel production could instantly equate to credible combat capability. However, such leaps of logic routinely occur when bluffing with WMD.

In 1957, when the nuclear capable Soviets launched the first man-made object (Sputnik) into orbit, some Americans became hysterical. Seeing tanks where only tractors and cannon barrels existed, Americans felt their country was "exposed to an almost immediate threat from the missile-bristling Soviet Union."⁽³⁵⁾ Even though the US had a comfortable lead in the development of strategic nuclear weapons, it was blind to its own advantage by focusing on the launch of Sputnik.⁽³⁶⁾ The Soviets had attained credibility for their nuclear arsenal without it being operational. Ironically, the Soviets weakened their own security situation by stimulating American Intercontinental Ballistic Missile (ICBM) development and the space race. A similar situation occurred in 1974 with India's "peaceful nuclear explosion" and their subsequent launching of an "ICBM without admitting the purpose."⁽³⁷⁾ Almost immediately, India was perceived, especially by Pakistan, as being a member of the Nuclear Club. Thus, India had attained credibility during any future attempts to coerce Pakistan with a nuclear bluff.

The most sinister aspect of bluffing with WMD is that credibility is becoming easier to attain. Due to the relative ease of producing and acquiring chemical and biological weapons, coupled with the difficulties of detecting such weapons and their production facilities, threatened nations are likely to become more reluctant to "call" a nation's bluff. An illustration of this aspect of WMD bluffing would be a threatened Libyan chemical attack on NATO personnel and facilities in the Mediterranean. Few nations would be quick to challenge Libya's threat (WMD bluff)

because of the credibility that comes with knowing the ease of producing such weapons, and the knowledge that Libya is building what former CIA Director John Deutch has called “the world’s largest underground chemical-weapons plant.”(38) The credibility of a WMD bluff can also be heightened by a history of prior use. This was the case with Iraq prior to the Gulf War. Based on Iraq’s use of chemical weapons during their war with Iran, their threatened use against the American led Gulf War coalition had great credibility.

“Calling” a nuclear bluff also will become difficult due to the spread of nuclear technologies and materials around the world. A recent example is North Korea, whose actions have done little to discourage concerns that they had operational nuclear weapons. From what appears to be a well-orchestrated nuclear bluff, North Korea obtained the removal of US nuclear weapons from the Korean peninsula, cancellation of a major US-South Korean military exercise, offers to upgrade their nuclear energy program, and promises of better trade and diplomatic relations.

This growing perceived credibility will especially benefit terrorist organizations. In the past, terrorist threats to use nuclear weapons lacked sufficient credibility, but this may not be true by the turn of the century. According to David Kay, leader of the United Nation's inspection team for Iraqi nuclear sites, the smuggling of weapons-grade material out of Russia will enable the terrorist to make "credible" nuclear threats. He goes on to say, "in the past it has been easy to dismiss any terrorist claims involving nuclear weapons as a hoax. This may not be possible when uncertainty exists over the whereabouts of weapons-grade material."(39) Clearly, terrorist threats of massive damage and loss of life will gain credibility as they acquire access to the technologies and materials of WMD.

Axiom II: *Undeclared* WMD Have Their Advantages

Another unique characteristic of WMD is that sometimes a *credible* bluff is best denied -- a policy of ambiguity. Denial allows a member of the WMD club to enjoy some of the advantages of membership without the costs and responsibilities. For Israel, who has transformed the *undeclared bomb* into an art form, its approach has clouded its status as a full-fledged nuclear power and allowed more maneuverability in world affairs. Its approach also permits the Arab nations, whose populations would be outraged if their leaders gave-in to an Israeli nuclear bluff, "to justify making peace without mentioning the bomb--even though it is the main reason for pursuing peace." (40) The Israeli approach also reflects their "awareness of the choices an open Israeli nuclear deployment would impose on the US administration and Congress." (41)

Just like the Israelis, the South African government also understood the utility of an *undeclared bomb*. In October 1978, well before they decided to abandon their nuclear weapons program, the South African's incorporated their understanding of an *undeclared* WMD program into three distinct phases of disclosure. The first phase, "strategic ambiguity," stated that "internationally, the government would neither confirm nor deny whether it possessed a nuclear weapons capability." (42) This phase would have allowed South Africa some of the same maneuverability in world affairs that the Israelis enjoyed. The second phase was intended for implementation in response to a direct military threat, such as Soviet-backed Cuban forces attacking from Angola. This phase involved the "leaking" of information concerning their nuclear weapons program in an attempt to entice other nations to intervene on South Africa's behalf. Their third and final phase was to involve full disclosure through public announcement or demonstration of capability, such as an underground nuclear test. (43) This South African three-phase strategy nicely illustrated an *undeclared bomb* program. More importantly, it also provides a model for the periphery nations seeking small WMD arsenals.

Another advantage of *undeclared bombs* is that they allow for ambiguities that add to the quality of the WMD bluff. In July 1988, Pakistani General Mohammed Zia ul-Haq spoke of the differences between what was said about his country's nuclear weapons program and what was

reality. Reminiscent of the South African's "strategic ambiguities," he stated that the ambiguities concerning both the Pakistan and Indian programs were "good enough to create an impression of deterrence." (44) The lesson to be learned by the periphery is that *undeclared bombs* allow for ambiguities which may, in fact, strengthen any WMD bluff. For the true gamblers of the periphery (possibly North Korea), there is the perception that the "strategic ambiguity" approach means WMD need not be operational to have utility!

Axiom III: Periodically Reinforce the Bluff

To maximize the utility of a WMD bluff, it is important to periodically remind the world of the threat. This can be accomplished through a variety of means to include demonstrations of technology, military exercises, announcements, or leaks. The Israelis have practiced this approach for many years with their nuclear weapons program. One such reminder, though likely unintended, occurred when an Israeli technician leaked to the press a wealth of information and photos concerning work at the Israeli Dimona reactor. Even though the Israeli government was outraged by the leaks and sentenced the technician to 18 years in prison, they "sought to make the best use possible of them (the leaks), in order to strip away a few more layers of the ambiguity in which they had veiled their deterrent capability." (45) Just as a leader may have to periodically reassert his authority over his organization to encourage the desired behavior of subordinates, a nation might have to periodically engage in a reinvigoration of its WMD threat to maintain its credibility.

Axiom IV: Keep a "Big" Friend

Aspiring WMD Club members from the periphery know the importance of keeping a *big* friend. Such a friend, in the form of a superpower like the US or great-power allies like Russia and China, can be essential in building a nuclear program without catastrophic political and economic costs. The Pakistanis lived this reality with the US. As one observer has noted, "the Reagan Administration had dramatically aided Pakistan in its pursuit of the bomb...it looked the

other way throughout the mid-nineteen-eighties as Pakistan assembled its nuclear arsenal with the aid of many millions of dollars' worth of restricted, high-tech materials bought inside the United States."(46) Unfortunately for Pakistan, they lost their *friend* when their assistance was no longer needed to remove the Soviets from Afghanistan. The US has since expressed outrage with Pakistan over its nuclear weapons program.

A more visible example of the importance of keeping a *big* friend has been Israel. For many years, their special relationship with the US has been "an example of a superpower tacitly using its influence with a client to keep the client's nuclear posture opaque, mitigating the more onerous effects an overt nuclear posture might have."(47) As discussed earlier, this relationship has enabled Israel to run its bluff without being subjected to the sanctions, embargoes, and world outcry, similar to that experienced by other potential new members of the WMD club, such as North Korea, Iraq, Libya, and Iran.

Axiom V: Appear Irrational (Sometimes)

For the most part, the major nuclear actors of the Cold War were rational. Whatever adventures and intrigues they plotted against one another in their competition for global influence, when it came to nuclear weapons they tended to be highly predictable. Purposeful irrational behavior was not attempted because of the fear that any miscalculation could result in a global nuclear war. With the emergence of the new world disorder, irrational behavior may become in vogue. Rational leaders may analyze their situations and discover some utility in acting irrationally (unpredictably) with their nuclear weapons.

Whereas rational behavior will likely remain the cornerstone of any WMD program, an insightful leader may attempt to "exploit his potentiality of behaving irrationally at certain times and under certain circumstances."(48) As observed by Edward Rhodes in his book Nuclear Weapons and Credibility, "the credible threat to behave irrationally in some further contingency may have powerful deterrent value, significantly influencing an adversary's behavior. The credible threat to behave irrationally may, thus, lie at the heart of 'rational' deterrence."(49)

Axiom VI: Don't Overplay Your Hand

One constant in the realm of WMD is the dangerous tendency of nations at risk to overestimate the size and capability of another nation's weapons arsenal. The Japanese did this with the US arsenal in 1945, and the US made similar mistakes during the early years of the Cold War regarding the Soviet Union. The world community may be engaged in just such an overestimation of North Korea's nuclear weapons capabilities and Libya's future chemical weapons production capacity. When attempting a WMD bluff, this tendency for inflation must be considered when seeking to maximize the credibility of the bluff without overplaying your hand. This sort of reaction is best illustrated by the US response to the Soviet Bison bomber bluff. Possible penalties of an overplayed bluff would be an overreaction manifested in the form of a preemptive strike or a significant arms build-up by an opposing country.

For a successful WMD bluff, the best approach appears to be the incremental release of information. This would allow time between increments for the world's *Chicken Littles* to inflate the numbers and speculate about irrational behavior, while also allowing the bluffing nation time to assess the impact of its leaks. If the desired effects are achieved, then new revelations can be saved for another day when a greater level of threat or coercion is required.

Axiom VII: Make Use of the Bluff

The existence of a credible WMD bluff, whether through a "declared" or "undeclared" WMD program, should be considered a national asset, not to be wasted and allowed to atrophy. Further, it should be periodically and judiciously exercised for the attainment of national objectives. The Ukrainians successfully used their nuclear bluff to attain financial and security commitments from Russia and the US. The Israelis have used their undeclared program for many years to ensure continued US arms shipments and deter Arab hostilities. Even the nuclear *unarmed*, such as Japan and Taiwan, have used veiled nuclear bluffs (threatening to go nuclear) to retain a US commitment to their security.

WMD bluffs can sometimes prove useful in the attainment of some not so clear national objectives, such as frightening an opposing nation into squandering resources to counter a non-existent threat. A masterful example of this was the reported US rigging in 1984 of the "Star Wars" tests. According to the "New York Times", the tests were rigged and the results faked in order to deceive the Soviet Union. The deception reportedly worked and "helped persuade the Soviets to spend tens of billions of dollars to counter the American effort to develop a space-based shield against nuclear attack."(50)

Not all nations have maximized the utility of a well-played WMD bluff, the most glaring example being South Africa. Some years ago, South Africa surprised the world by their unilateral renouncement of nuclear weapons and decision to adhere to the provisions of the Nuclear Weapons Non-proliferation Treaty. This represented an *opportunity lost*. Knowing they planned to eliminate their nuclear weapons program, they would have been better served by publicly acknowledging the existence of their program. Then, in response to world outcry, they could have set about the task of negotiating a lucrative package of concessions in return for renouncing their nuclear weapons stockpile. Though they did incur some benefit from their actions, they failed to fully maximize the utility of their nuclear weapons arsenal.

Axiom VIII: No *Weapons of Last Resort* Doctrines

Yet another unique characteristic of WMD is that, if viewed as *weapons of last resort* they contribute very little to preventing conventional conflict. Non-WMD equipped adversaries may feel free to chip away at the national interests or borders of a WMD armed nations, knowing full well that nations would never use such powerful weapons unless sovereignty was threatened. The challenges are to see the potential utility of WMD as something other than as *weapons of last resort* and to recognize their utility throughout the entire spectrum of armed conflict.

At the beginning of the Cold War, the US fell into this trap of a *weapons of last resort* doctrine and developed their nuclear arsenal in lieu of conventional forces. Though there were many iterations of US nuclear doctrine (Massive Retaliation, Assured Destruction,

Counterforce/Counter City Targeting, etc.), they all lacked flexibility. This was especially true at the tactical level. More importantly, they increased the US vulnerability to conflicts falling short of all-out nuclear war. One such non-nuclear conflict was thought to be an overwhelming Soviet conventional attack against the US and its NATO allies in Europe. To counter this threat, the US adopted "Flexible Response" which, according to Robert McNamara, meant that the US was "prepared to counter with nuclear weapons any Soviet conventional attack so strong that it cannot be dealt with by conventional means."(51) This doctrine also promised a US nuclear response to any first use of nuclear weapons by the Soviets. The US vision beyond the *weapons of last resort* doctrines manifested itself in the Flexible Response and contributed to over 40 years of peace in Europe.

Axiom IX. Go Chem/Bio - They're Cheaper, Easier, and Can Be Kept A Secret

Until well into the next century, when the world will be more vulnerable to the scourges of information warfare, the WMD of choice for the rogue nation or terrorist groups will likely be chemical and biological weapons. A manifestation of this preference for chemical and biological weapons has already been observed in the three 1995 incidents in which American extremists attempted to obtain and use these weapons, and the failed attempt by the World Trade Center bombers to create a poisonous cyanide gas cloud.(52)

Nuclear weapons are less desirable because they require sophisticated technologies and materials, making them difficult to acquire and expensive -- as the Iraqi's discovered in the 1980's when they employed 10,000 people and spent \$10 billion in a failed attempt to acquire nuclear weapons.(53) On the other hand, a small arsenal of chemical and biological weapons can be relatively easy to produce. Their technologies are known and well within the production capabilities of many university laboratories, hospitals, and commercial production facilities. Chemical and biological weapons are also less expensive and easier to employ, no high-tech military hardware (artillery, missiles, and aircraft) is required. These weapons can be delivered via a variety of low-tech approaches to include crop dusters, small packages left in subways, or

small vials of liquid released in a remotely located city water supply. Deadly biological agents can even be spread using a purse-sized perfume atomizer.(54) To the *Minimalist*, such highly lethal and easily used weapons are ideal against Americans who are perceived to have such a low tolerance for fatalities.

The greatest advantage of chemical and biological weapons is that they can be kept a secret -- they do not readily reveal the identity of the assailant. In a discussion on this aspect (as it applies to biological weapons), the Honorable Richard Danzig, Under Secretary of the Navy, called this the “invisibility of the archer,” that the “ease of concealment and delivery, when coupled with difficulties in detection of agents and delays (often of days) in the appearance of symptoms, make an assailant difficult to detect and even identify after the fact.”(55)

Axiom X: In Information Warfare...The Cyber-bluffer Has the Advantage of Sanctuary

As the world prepares for the information age of the 21st century, rogue leaders and terrorist groups will likely commit to quickly recognize the greatest advantage of information warfare -- the cyber-bluffer has the advantage of sanctuary. For those being threatened, neither broad oceans, massive militaries, nor tightly controlled borders will provide sanctuary from the cyber warrior or terrorist. Concepts of strategic mobility and force protection will become marginalized. As explained by three RAND Corporation information warfare authorities:

“Information-based techniques render geographical distance irrelevant; targets in the United States are just as vulnerable as in-theater targets. Given the increased reliance of the US economy and society on a high-performance networked information infrastructure, a new set of lucrative strategic targets presents itself to potential IW-armed opponents.”(56)

The information age will be a world without borders and front-lines, where the interlocking of economic and political institutions will relinquish *home-field advantage* to any cyber warrior or terrorist who has mastered the terrain of the Internet and knows the secret byways of the information highway. The only real sanctuaries will belong to those seeking to manipulate the

behavior of others through the application or threatened application of information technologies. Secure within their sanctuaries of secrecy and confusion, cyber warriors and terrorists will disguise their attacks as accidents, systems failures, or the actions of thrill-seeking computer hackers. They need not even reveal their place of origin or whether the nature of their attacks is foreign or domestic. In information warfare, the advantage of sanctuary clearly favors the cyber-bluffer.(57)

Busting the Axioms:

Enhancements to Counterproliferation Initiatives

Like the early years of the Cold War, the world once again finds itself at the crossroads of mass destruction. Dynamic changes in world political polarity, regional power struggles, and the turmoil of ethnic and religious unrest have positioned humanity at the starting gates of a renewed arms race, but this time with weapons unimaginable 100 years ago. Turning to the historical lessons of the Cold War, packaged neatly in ten “Axioms of a Good Bluff,” those seeking WMD perceive great utility in the acquisition of a small arsenal of such weapons. Unfortunately, this perceived utility of WMD may spawn an arms race causing major shifts and convulsions in world order, and tear at the very fabric of international security.

If the US, as the world’s remaining super power, is to accept the lead in the fight against this renewed surge in WMD proliferation, it too must turn to the lessons of history for answers. In so doing, the US leadership should see that WMD proliferation is impossible to stop totally, but it can be controlled and its adverse effects on world peace and security minimized. To meet this end, President Clinton, as he builds his bridge to the 21st century, should adopt a new counterproliferation strategy constructed with the iron girders of a chemical and biological containment strategy for the 21st century, nuclear disarmament by 2020, and preparations for the information age.

Chemical/Biological Containment Strategy

WMD can not be dis-invented, nor legislated out of existence. As the technology of such weapons becomes readily available throughout the world, the risk of WMD use increases significantly. This is especially true of chemical and biological weapons, whose lethality, low cost, and minimal technology requirements, will make them the favored weapons of choice during the early years of the 21st century. The best that can be hoped for is to minimize the adverse effects of chemical and biological weapons on world peace and stability. Fortunately, this is achievable through a chemical and biological containment strategy designed to complement other international counterproliferation regimes such as the Biological Weapons Convention (BWC) and the Chemical Weapons Convention (CWC).

This new containment strategy would begin with the core of the world's major powers (China, France, Germany, Great Britain, Japan, Russia, and the US) agreeing to abandon their past practices which served to weaken each other's attempts to use economic and political sanctions to alter the behavior of rogue nations. Instead, these core nations would unite in the economic and political isolation of any nation that uses or threatens to use (domestically or abroad) chemical and biological weapons, regardless of the reasons for the belligerent's actions. Though this proposal may sound similar to on-going counterproliferation regimes and past failed attempts to orchestrate international sanctions, this new containment strategy would be quite different for three reasons. First, the strategy would target the actual use or threaten use of chemical and biological weapons, not the trafficking of such technologies and materials. This narrowing of the terms of violation would ease the consensus building process among the major powers, while deterring the use or threaten use of chemical and biological weapons.

Secondly, to by-pass the quagmire of reaching agreement on the handling of dual-use technologies and the details of intrusive treaty compliance inspections, this new strategy calls for the core nations, and those to join later, to seek agreements which are achievable. Such achievable agreements would include the definitions of WMD, use, and threatened use. Avoided would be any attempt to define and limit the transfer of dual-use technology, and implement an

intrusive peacetime inspection regime. Partners in this new strategy would also jointly agree to the mechanisms for isolation. This represents an important aspect of this containment strategy in that agreement on the terms of the strategy would not be sought in a time of crisis, when nations become polarized over a particular issue. Instead, consistent with the practices of domestic law, the needed definitions and mechanisms for isolation (punishments) would be determined in advance of their need and made known to all nations in a declaratory policy -- thus assuring the "buy-in" of the core nations and providing for a demonstration of their unity and resolve.

A third difference between this strategy and the BWC and CWC regimes is that it seeks to discourage WMD development by raising the costs of use, or threatened use, through the core nations pledging to bring about the assured destruction of the belligerent's economic and political institutions. Such destruction would be achieved through the use of *overwhelming* political and economic force in the forms of a total trade embargo and termination of diplomatic relations. The weapons of information warfare would also be brought to bear for the total disruption of the belligerent's information systems. Use of military force would not be preordained, but would remain an option after consultation among the core nations.

This containment strategy for the 21st strategy is not intended to replace the BWC and CWC regimes, only enhance them through the addition of another element of deterrence. The essence of this new containment strategy was best captured in the Autumn 1996 edition of the US Army War College Quarterly, Parameters, which stated that "a properly designed deterrence strategy will cause the challenger to calculate that the expected benefits of the use of force will be negated by the costs inflicted by the deterrer's response."(58)

50 By 2020 Nuclear Disarmament Program

The Cold War is over, Russia appears poised to ratify the Start II Treaty and to pursue further relief from the financial burdens of a large nuclear stockpile. The world's security threats have become regional rather than global. Thus, the time appears right for the US to make good on its 1968 and 1995 pledges, as a ratifier of the Non-Proliferation Treaty (NPT), to pursue in good

faith the “general and complete disarmament under strict and effective international control.”(59) Sharing this view on timing, an international group of senior military leaders recently called for massive reductions in the world’s nuclear arsenals. Among this group, retired US General Lee Butler, former commander of Strategic Air Command, proclaimed that “nuclear weapons are inherently dangerous, highly expensive, militarily inefficient and morally indefensible.” He further acknowledged that “a world free of the threat of nuclear weapons is necessarily a world devoid of nuclear weapons.”(60)

While General Butler’s comments appear both valid and desirable, it is hard to see how nations such as Israel and Pakistan could ever be persuaded to give up their *equalizers* with their military strategists believing “that nuclear weapons are the ultimate ‘deterrent’ against numerically larger forces.”(61) The dilemma that exists then, is how does the US pursue its NPT obligations for total disarmament in a world bristling with nuclear weapons and unwilling to disarm? The answer may lie in a new approach to disarmament which places the nuclear genie back into the bottle, with international observers keeping their eyes on the cork.

Specifically, the recommended new approach to disarmament is for the world’s major nuclear powers (China, France, Russia, United Kingdom and the US) to join in the gradual *build-down* of their stockpiles to a level of 50 weapons by the year 2020. Other nuclear powers, to include India, Israel, and Pakistan, would be allowed to join if they accepted a freeze in their current stockpile numbers, not to exceed 20 weapons. The overall goal of this *50 By 2020* nuclear disarmament program would be to complement current nuclear weapons control regimes by having the world’s nuclear powers dismantle, store, and control their remaining 50 weapons, while under the watchful eyes of international observers. These observers would come from other *50 By 2020* nations and be permanently stationed at the weapons storage sites. Their only role would be to provide daily assurances or strategic warning to their governments concerning the nuclear activities of the other *50 By 2020* nations. Nations would be free to decide for themselves the types of nuclear weapons and delivery systems they retain. Further, due to the increased risk posed by such small stockpiles, nations would negotiate the number of dispersed

storage facilities and the installation of layered theater missile defensive (TMD) systems. As an incentive to join the *50 by 2020* program, the US could share their TMD technologies and provide real-time missile attack warning, using their satellite early warning systems.

Based on the earlier discussions on the utility (deterrent value) of a small arsenal of nuclear weapons, retaining 50 weapons appears more than sufficient to provide such utility while also ensuring survivability of these weapons through dispersement. Though the ultimate goal is total nuclear disarmament, reduction to 50 weapons is seen as a very significant step in the right direction and necessary to ensure the continued deterrence of non-*50 By 2020* nations and unknown clandestine WMD programs. The success of *50 By 2020* could eventually lead to total nuclear disarmament.

The most obvious advantage of *50 By 2020* is that it reduces the incentives for a renewed nuclear arms race and provides for greater global stability by giving visibility to the world's nuclear stockpiles. Another advantage is that it would demonstrate a long-term commitment to total disarmament and would bolster US leadership within other WMD disarmament regimes. *50 By 2020* would also provide for a reduction in the risks of nuclear accidents or incidents through internationally approved storage and physical security procedures. Overall, it facilitates an environment of trust between member nations by giving each visibility over its most threatening weapons system and providing strategic warning of intended use in a crisis.

Preparations for the Information Age

In the information age, "information has itself become a vital strategic resource."⁽⁶²⁾ As the global information infrastructure evolves, new vulnerabilities to national security will emerge in the form of threats to a nation's communications and financial institutions -- the *societal connectivity*.⁽⁶³⁾ The American challenge, as the world's masters of information technology, will be to provide the visionary leadership critical to the seamless transformation of the world's structures to the new reality of the information age. A global atmosphere where the integration of the world's economic, political, and military institutions will encourage an environment of

trust -- thus neutralizing the incentives for WMD proliferation. As a part of its global leadership and responsibility, the US would focus its considerable energies on preventing the emergence of information age technologies as the new WMD in the 21st century.

As futurists Alvin and Heidi Toffler have pronounced, America has a “destiny to create” at the dawn of the information age. A total restructuring of the world's political institutions so as to ride the wave of information technology into a 21st century of free and open societies, united in their effort to stop the spread of WMD.(64) To create this destiny, the US needs to appoint a cabinet level post to explore today's applications of information technologies and seize the power of such technologies for a better tomorrow. Through such a visible position of US leadership, a national vision would be developed to rally American commitment for the total overhaul of its economic, political, and military institutions to better leverage the power of the information age technologies. Further, a national framework would be developed for the establishment of US world leadership in the information age --- leading the nations of the world into a more peaceful and prosperous century through the harmonization of their political, economic, and military institutions.

Information technologies would also be applied to the reinforcement of internationally accepted norms of behavior (i.e., non-aggression, human rights, and nonproliferation of WMD). Nations abiding by these norms would be rewarded through greater access to world markets and production technologies, assistance in political and economic reform, and help in mastering the tools of the information age. Those nations not in compliance with established norms would be isolated in a manner similar to that described earlier in the chemical and biological containment strategy, and subject to the mechanisms and tactics of information warfare.

While the power of information age technologies can be framed in the Cold War paradigms of violence and conflict, such technologies can also be seen as tickets to a better world. Through a determined effort to harness the power of the information age, the US can lead the nations of the world into the 21st century as partners in peace -- free of weapons of mass destruction.

Conclusion

This paper has advanced the claim that changes in the world order, coupled with the growing availability of WMD technologies, have afforded the nations of the periphery a broad new opportunity to engage in the high stakes brinkmanship of bluffing with WMD. Reinforcing their zeal for these grotesquely destructive weapons are the lessons of history, which, when packaged neatly as “Axioms for a Good Bluff,” seem to tell the rogue nations and their surrogate terrorist groups that WMD will give them the relative freedom to pursue their regional hegemonic ambitions and impose their religious and ethnic agendas on their neighbors. Unfortunately, the Cold War precepts of deterrence hold little influence over a rogue regime like Iraq which views WMD with a “mystical attraction,” and as the “incarnation of modern power.”(65)

An appropriate response to WMD proliferation is for the US to take the lead in updating the world's concepts of deterrence with a new set of carrots and sticks. The carrots must be sweeter and encompass the application of information age technologies to provide greater access to world markets and production technologies and help in maximizing the benefits of information age technologies. These sweeter carrots, through the information age's harmonization of the world's economic and political institutions, will bestow upon the peripheral nations recognition as valued members in the world community. Further, the US needs to encourage the world's major powers to set the example through the elimination of their own WMD. This can be achieved through continued support of the CW and BW regimes, and adoption of the *50 By 2020* nuclear disarmament proposal. Just as important, the “sticks” of international sanctions need to be bigger, and have the full support of the world community. Draconian rules of international law, such as the proposed chemical and biological containment strategy, should be adopted to demonstrate the world's *zero tolerance* for chemical and biological weapons. The military “sticks” should also be retained and cover the full spectrum of conventional and nuclear responses. Most importantly, the credibility of these new carrots and sticks must be ensured by the world's clear statement and demonstration of their commitment to stop WMD proliferation. Failure to do so will invite a radical redistribution of power and a shattering of world order.

Endnotes

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